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REMARKS

Claims 1-13 were pending. By this Amendment, claims 2, 3, 9 and 10 have been canceled, without prejudice or disclaimer, claims 1, 4, 5, 8 and 11-13 have been amended to clarify the claimed subject matter, and new claims 14 and 15 have been added. Claims 1, 4-8 and 11-15 would be pending upon entry of this Amendment, with claims 1 and 8 being in independent form.

It is alleged in the Office Action (section 3, pages 2-3) that applicant has not submitted a certified copy of the priority document (Japanese patent application no. 2004-344602, filed November 29, 2004).

This application is a Section 371 national stage (filed June 19, 2006) of International Application No. PCT/JP2005/022238. Attached as **Exhibit A** hereto is a copy of a Notification Concerning Submission Or Transmittal Of Priority Document from the International Bureau of WIPO indicating that the required certified copy of the priority document was received by the International Bureau.

Attached as **Exhibit B** hereto is a copy of a Notice Of Acceptance Of Application Under 35 U.S.C. 371 and 37 CFR 1.495 from the Patent Office indicating that the priority document was filed on 07/19/2006 in connection with this Section 371 national stage application.

Further, it is noted that the Office Action Summary indicates that the required certified priority document was received by the Patent Office.

Accordingly, it is submitted that the required priority document has been duly submitted.

Claims 1, 2, 5-9, 12 and 13 were rejected under 35 U.S.C. § 102(e) as purportedly anticipated by Hirano (US 7,499,198). Claims 3, 4, 10 and 11 were rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over Hirano in view of Iwasaki et al. (US 7,011,386).

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Applicant respectfully submits that the present application is allowable over the cited art, for at least the reason that the cited art does not disclose or suggest the aspects of the present application that (a) a dither process uses a dither mask that is formed by first patterns and second patterns, the first patterns have a plurality of different threshold values by combinations of dots recognizable as inclined line-group tone patterns, and the second patterns *interpolate between the first patterns to obtain linear gradation values*, and (b) *first threshold values of the dither mask at dot positions recorded during the recording in the forward path are small relative to second threshold values of the dither mask at dot positions recorded during the recording in the return path* in a section between the first and second threshold values, the *first threshold values emphasize the inclined line-group keytone pattern by a combination of specific dots*, and the *second threshold values are higher than the first threshold values and emphasize the inclined line-group keytone pattern by a combination of specific dots*.

Such aspects are discussed in the present application, for example, at page 60, lines 2-21, in conjunction with FIG. 29, in connection with an image processing method for processing image data to be output to an image forming apparatus, or an image forming apparatus that can perform two-way recording to form an image on a recording medium by recording in a forward path and a return path of a scan by an ink-jet recording head, wherein a combined dither mask of a forward path mask ("*first threshold values*") and a return path mask ("*second threshold values*") is used. In the (combined) dither mask, the first threshold values at dot positions recorded during the recording in the forward path are small relative to the second threshold values at dot positions recorded during the recording in the return path in a section between the first and second threshold values. The first threshold value emphasizes the inclined line-group keytone pattern by a combination of specific dots, and the second threshold value is higher than

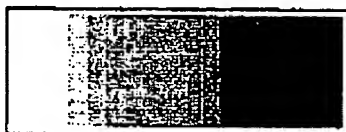
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the first threshold value and emphasizes the included line-group keytone pattern by a combination of specific dots. As a result, the line-group keytone pattern is more easily formed during the recording in the forward path.

Hirano, as understood by applicant, proposes an image processing apparatus using a halftone process including a Bayer-type dither process and an error diffusion process. The dot pattern in such process is shown in Figs. 18A, 18B, 18C (reproduced below) of Hirano.

**FIG.18A**



**FIG.18B**



**FIG.18C**



More specifically, Fig. 18A shows input image data. Fig. 18B shows the output image after carrying out the Bayer type dither process with respect to the input image data shown in Fig. 18A. Fig. 18C shows the output image after further carrying out the error diffusion process.

As known in the art, each of a Bayer type dither process and an error diffusion process is used to reduce the number of colors (or tones). Such result is obtained in Bayer type dither process through replacing a pixel in the original image data with a plurality of pixels of a pseudo gradation representation, such that a texture pattern not present in the original image appears in the output image (as shown in Fig. 18B of Hirano). An error diffusion process is applied in

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halftoning to convert a multi-level image into a binary image by propagating quantization errors with respect to a pixel to neighboring pixels, such that a random dot layout appears.

However, neither the Bayer type dither process nor the error diffusion process typically involves *interpolating* between first patterns *to obtain linear gradation values*. Contrary to the contention in the Office Action none of the Figs. 18A (input image data), 18B (pseudo gradation representation obtained by Bayer type dither process) and 18C (random dot layout appearance obtained by error diffusion process) of Hirano shows such aspect of the present application. See Hirano, column 13, line 60 through column 15, line 3, for a discussion of Figs. 18A-18C.

Further, Hirano, as acknowledged in the Office Action, does NOT disclose or suggest the aspects of the present application that *first threshold values of the dither mask at dot positions recorded during the recording in the forward path are small relative to second threshold values of the dither mask at dot positions recorded during the recording in the return path* in a section between the first and second threshold values, the *first threshold values emphasize the inclined line-group keytone pattern by a combination of specific dots*, and the *second threshold values are higher than the first threshold values and emphasize the inclined line-group keytone pattern by a combination of specific dots*.

Likewise, Iwasaki does NOT disclose or suggest such aspects of the present application.

Iwasaki, as understood by applicant, an approach for controlling discharge in an inkjet printhead wherein the number of ink dischargings from each of plural print elements is counted during reciprocate scanning, it is determined whether or not the counted number of ink dischargings from each of the plural print elements is equal to or greater than a predetermined number at predetermined intervals, a printable period is updated in accordance with the result of determination, the updated printable period is compared with time necessary for the next scan

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upon completion of one reciprocate scan, and then preliminary discharge is performed from the inkjet printhead in accordance with the result of the comparison.

Iwasaki, column 9, lines 40-52 (reproduced below), was cited in the Office Action.

[Other Embodiment]

In the above-described embodiment, the minimum number of discharges per 1 nozzle within the printable period is determined with a predetermined threshold value (TH). Accordingly, if the threshold value is set to a large value and the number of dischargings upon preliminary discharge in a case where the count value is equal to or less than the threshold value is set to a large value, the reliability of discharge upon printing is increased. However, in the case where the predetermined value is set to a large value, there is a high probability of preliminary discharge at each interval between printing scannings. To effectively utilize the advantage of this function, it is preferable that the predetermined value (TH) is as small as possible and the number of dischargings upon preliminary discharge in a case where the count value is equal to or less than the threshold value is set to the same as the predetermined value.

Thus, Iwasaki merely describes a threshold value for determining a minimum number of discharges per 1 nozzle, in order to determine whether or not to perform a preliminary discharge. The threshold value in Iwasaki is thus completely unrelated to a threshold value of a dither mask.

Indeed, Iwasaki does NOT mention use of a dither mask nor a dithering process otherwise.

The cited art simply does not disclose or suggest, among other things, the above-mentioned aspects of the present application.

Applicant submits that the cited art, even when considered along with common sense and common knowledge to one skilled in the art, does **NOT** render unpatentable the above-mentioned aspects of the present application.

Accordingly, applicant respectfully submits that independent claims 1 and 35-38, and the claims depending therefrom, are allowable over the cited art.

In view of the remarks hereinabove, applicant submits that the application is now

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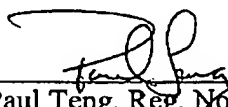
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allowable, and earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Patent Office is hereby authorized to charge any required fees in connection with this amendment, and to credit any overpayment, to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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Paul Teng, Reg. No. 40,837  
Attorney for Applicant  
COOPER & DUNHAM LLP  
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# EXHIBIT A

to

**AMENDMENT**  
(U.S. Application No. 10/586,797)

## PATENT COOPERATION TREATY

PCT/JP2005/022238

From the INTERNATIONAL BUREAU

**PCT**NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

ITOH, Tadahiko  
32nd Floor, Yebisu Garden Place Tower  
20-3, Ebisu 4-chome  
Shibuya-ku, Tokyo 1506032  
JAPON

Date of mailing (day-month-year) 10 February 2006 (10.02.2006)	
Applicant's or agent's file reference R05219PCT	IMPORTANT NOTIFICATION
International application No. PCT/JP2005/022238	International filing date (day-month-year) 28 November 2005 (28.11.2005)
International publication date (day-month-year) Not yet published	Priority date (day-month-year) 29 November 2004 (29.11.2004)
Applicant RICOH COMPANY, LTD. et al	

1. By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
3. (If applicable) An asterisk (\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
29 November 2004 (29.11.2004)	2004-344602	JP	03 January 2006 (03.01.2006)

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

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# **EXHIBIT B**

to

**AMENDMENT**  
(U.S. Application No. 10/586,797)



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/586,797	Daisuke Suzuki	2271/76611
23432		
COOPER & DUNHAM, LLP		
1185 AVENUE OF THE AMERICAS		
NEW YORK, NY 10036		
INTERNATIONAL APPLICATION NO.		
PCT/JP2005/022238		
I.A. FILING DATE	PRIORITY DATE	
11/28/2005	12/01/2004	

CONFIRMATION NO. 8762  
371 ACCEPTANCE LETTER



Date Mailed: 06/17/2008

### NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

07/19/2006  
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1),  
(c)(2) and (c)(4) REQUIREMENTS

06/01/2007  
DATE OF COMPLETION OF ALL  
35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363). Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 07/19/2006
- English Translation of the IA filed on 07/19/2006
- Copy of the International Search Report filed on 07/19/2006
- Copy of IPE Report filed on 07/19/2006
- Information Disclosure Statements filed on 07/19/2006
- Oath or Declaration filed on 07/19/2006
- U.S. Basic National Fees filed on 07/19/2006
- Assignment filed on 07/19/2006
- Priority Documents filed on 07/19/2006 ←

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

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